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Stonewall Structural Engineering, PLLC
9203 Baileywick Rd. #200
Raleigh, NC 27615
(919)407-8663



Devin Hunt
Tar Heel Basement Systems
8005 Knightdale Blvd.
Knightdale, NC 27545

Re: Revised Structural Observation — *101 North 12th Street, Erwin, NC 28339*

Mr. Hunt,

At your request, on October 29, 2025 we performed an on-site visual inspection and review of the structural plan proposed by *Tar Heel Basement Systems* for the first-floor framing reinforcement work at the Erwin residence noted above. The structure is a conventionally framed, detached, single family residence with raised first floor framing over a pier/curtain wall foundation system (see *picture 1*). Our observations are listed below. Indicators such as "left," "right," "front," and "back" are

R1 referenced as viewing the front of the home. This report has been revised to include a repair schematic which was initially omitted.

FIRST-FLOOR FRAMING ISSUES

- Numerous brick support piers were noted to be in poor condition and providing inadequate support (see *repair plan for approximate locations* and *pictures 2-3 for examples*).
 - A significant portion of the crawlspace was unable to be accessed during our site visit due to space constraints (see *picture 4 and the attached repair plan for additional information*).
 - The crawlspace was noted to be excessively wet during our site visit. No vapor barrier was observed.
- The front-right joist span was noted to be visibly sagging.
 - Limited investigation from the crawlspace revealed the 5th-7th joists from the right were deteriorated (see *pictures 5-6 for examples*).
 - Measurement by laser level indicated the floor joists were sagging by as much as approximately 1 $\frac{3}{8}$ " at midspan.
- Significant slopes in the floor were noted near the back bathroom as well as the left side of the home (see *picture 7 for example*).
 - As noted above, the framing beneath these areas was inaccessible at the time of our site visit; however, significant deterioration was visually apparent (see *picture 8*).

We recommend the following work be performed by a qualified general contractor (see *repair schematic at end of this report*):

- 1) Remove and replace all improper brick pier supports with new CMU piers constructed per the attached detail (see *Detail 1*) and centered over a 24"x24"x10" thick poured concrete footings.
 - a) The middle brick support pier located approximately 16' from the back of the home, and 8' from the left of the home, may be replaced with an IntelliJack support founded atop a well-compacted 18"x18"x18" gravel footing (see *Detail 2*).
- 2) Reinforce the back most girder bay at midspan using an IntelliJack support on a well-compacted 18"x18"x18" gravel footing (see *Detail 2*).
- 3) Reinforce each of the deteriorated joists noted above with an additional ply of full-depth (2x8 minimum) 2x #2 Southern Yellow Pine (SYP), fastened to the side of the deteriorated joists using (3)10d common nails at each end and at 12" on-center staggered top and bottom along the lengths of the joists. Sistered material should span continuously between end supports.
- 4) To raise/stiffen the floors in the front-right of the home, install a supplemental S4x7.7 dropped girder within the middle 1/3 of the joists. The new girder should span the length of the joist bay and be supported over IntelliJack supports on well-compacted 18"x18"x18" gravel footings spaced no more than 6'-6" apart (see *Detail 2*).
- 5) Modern building standards require at least 18" of clearance from top of crawlspace soils to the undersides of joists, and at least 12" of clearance from top of crawlspace soils to the undersides of girders. We recommend removal of soils from the crawlspace as is necessary to achieve minimum clearances to help prevent significant deterioration of wood framing members due to rot. Care should be taken not to undermine foundation elements by removal of soils from the crawlspace.
 - a) If excavation is not to be performed, any new framing material should be treated #2 SYP in areas where minimum clearances are not met.
- 6) We strongly advise additional investigation be performed including the select removal of finishes in the portions of the home that are significantly uneven.
 - a) *Additional structural repairs, up-to and potentially including, re-framing may be required. The removal of finishes to expose the existing framing configuration and the extents of deterioration are required in order to facilitate design of the appropriate repairs.*
- 7) Due to the infeasibility of achieving adequate cross-ventilation of the crawlspace, we recommend installation of a Code-approved closed crawlspace system with adequate vapor liner and mechanical drying measures to help avoid future advanced framing deterioration due to wood rot.

The above-listed determinations were made in accordance with common engineering principles and the intent of the 2018 edition of the *North Carolina Residential Building Code*. Sequencing, and means and methods of construction are considered to be beyond the scope of this report. Contractor is to provide adequate temporary shoring prior to cutting or removing any structural load-bearing elements. All work is to conform to applicable provisions of current building standards. Please feel free to contact us, should you have any questions or concerns regarding this matter.

Inspection performed by: Nicholas Piantadosi, EI

Sincerely,

Matthew C. Murphy, PE
Stonewall Structural Engineering, PLLC
Lic. #P-0951



11/11/2025

PICTURE ADDENDUM



Picture 1 – 101 North 12th Street, Erwin, NC 28339



Picture 2 – Inadequate brick pier



Picture 3 – Inadequate brick pier



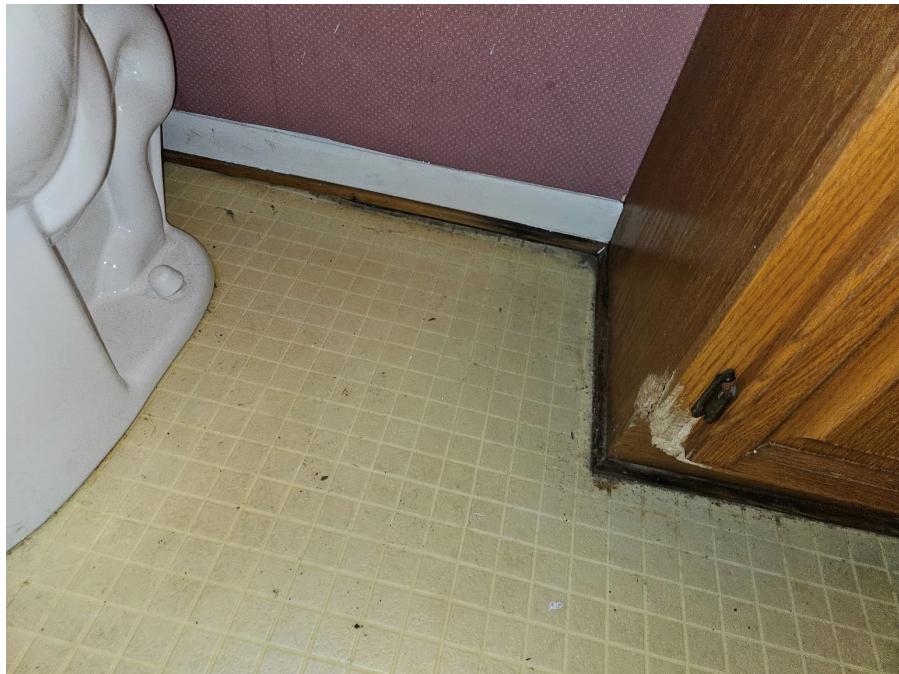
Picture 4 – Inadequate clearance



Picture 5 – Deteriorated joist



Picture 6 – Deteriorated joist

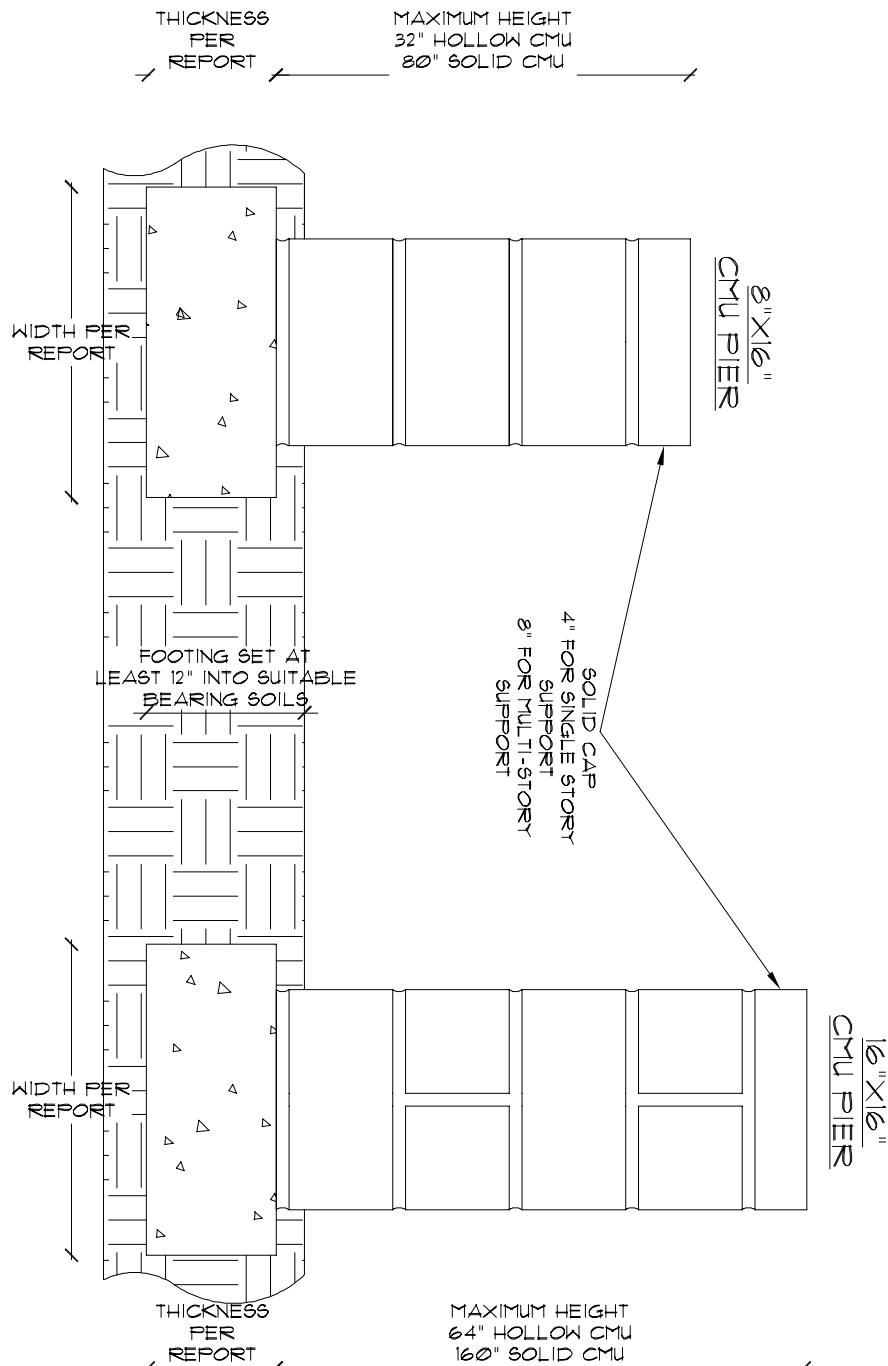


Picture 7 – Slope in bathroom

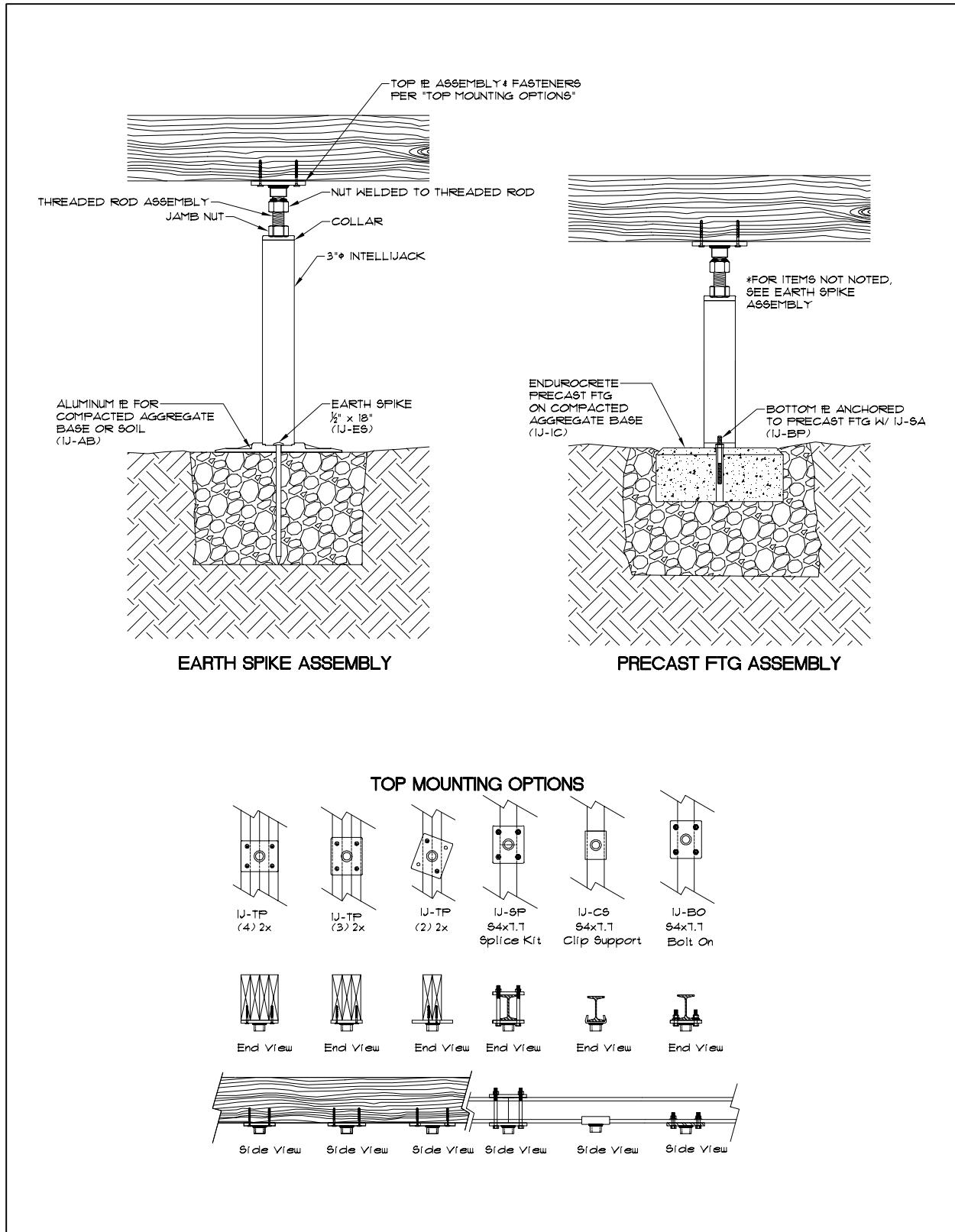


Picture 8 – Deteriorated joists past inadequate clearance

DETAIL ADDENDUM

INTERIOR MASONRY PIER DETAIL

Detail 1 – New CMU Pier Specifications

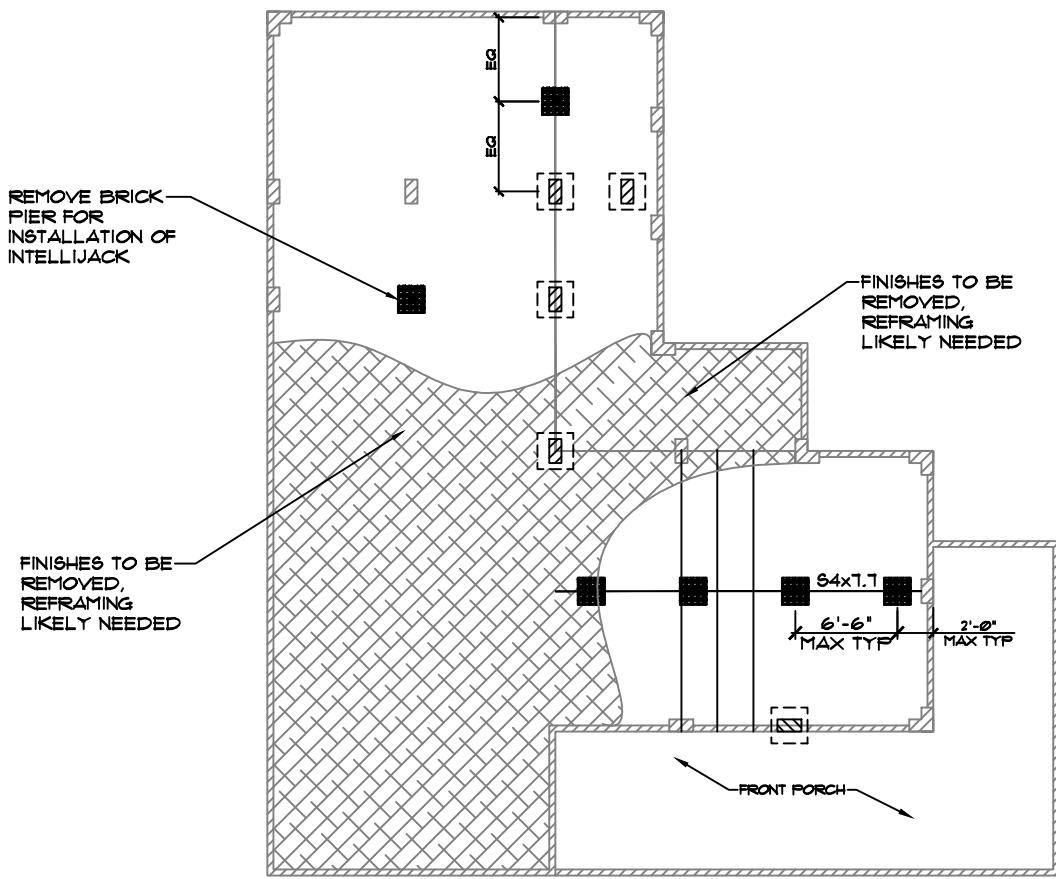
*Detail 2 – Intellijack Installation Specifications*

NOTES

1. CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO PERFORMING WORK.
2. ASSUMED SOIL BEARING CAPACITY 2,000 psf. CONTACT SOILS ENGINEER IF UNSUITABLE BEARING SOILS ENCOUNTERED.
3. ALL NEW WOOD FRAMING TO BE #2 SOUTHERN YELLOW PINE OR BETTER U.O.N.
4. SEE REPORT FOR ADDITIONAL NOTES & DETAILS

LEGEND

-  INDICATES (E) PIER/CURTAIN WALL & RIM BEAM
-  INDICATES (E) MASONRY PIER
-  INDICATES INTELLIJACK SUPPORT ON WELL-COMPACTED 18" x 18" x 18" GRAVEL FTG PER REPORT & ATTACHED DETAILS
-  INDICATES (N) MASONRY PIER OVER 24" x 24" x 10" THK POURED CONC. FTG (LOCATIONS TO MATCH (E) BRICK PIERS BEING REPLACED)
-  INDICATES PORTION OF NON-ACCESIBLE CRAWLSPACE
-  INDICATES APPROXIMATE LOCATION OF JOIST TO BE REINFORCED PER REPORT



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Repair Plan

Tar Heel Basement Systems
101 North 12th Street
Erwin, NC 28339

SCALE:	NTS	JOB #:	25-2561
DRAWN BY:	N.F.P.		
DATE:	2025.11.04	SHEET #: SK1	